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Energy Efficiency Begins at Home

Energy Management Workbook



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Use this 3-year workbook to help you see how much energy you are using and find places where you can cut back. Energy conservation and efficiency begin at home — your home!



Energy Efficiency Begins at Home

Energy Management Workbook

Managing Energy Use

Everyone needs to minimize waste and maximize efficiency in energy use. Making some adjustments in our lifestyles can reduce energy consumption and costs so all may live comfortably within the limitations of resources available now and in the years ahead.

Energy reduction doesn't just happen. We must establish goals, make a plan, develop a procedure, and make the necessary changes in our everyday living.

Realistic energy-reduction goals can be established and a plan developed for achieving them. We have direct control over the amount of energy spent to heat and cool our homes, to run household appliances, to prepare our food, to heat water, to burn lights, and to operate our automobiles.

How we select, use, care for, and maintain our housing, furnishings, and equipment affect their performance, service life, and lifetime cost. (Purchase cost + repair + maintenance + energy = lifetime costs.) The frequency of use, care, and maintenance of the family automobile greatly affects its service life, lifetime cost, and energy requirements.

This workbook is designed to help you record and analyze the amount, cost, and source of energy used monthly and yearly over a 3-year period. This record will provide data for you to measure progress toward your energy-reduction goal.

Family Profile

This profile will help you look at some factors that have an influence on energy use.

How many people are in your household? _____

What is their age range? _____

How many family members are home during the day? _____

Do you live in a rural, suburban, or urban area? _____

What is the size of your housing unit (square feet of living space)? _____

Is your housing unit considered single, detached, row housing, large apartment building, or mobile home? _____

What is the average temperature for your location?
_____ Summer months _____ Winter months

How many people drive to work each day? _____

What is the total mileage daily? _____

Yearly? _____

Steps To Improving Energy Management

- Set a realistic, energy-saving *goal*.
- Develop a *plan* for achieving your goal.
- Take *control* of the amount of energy used in and around your home.
- Decide what *changes* you will make.
- *Stick* to your plan.
- Keep a *record* to determine progress.

What's Your Energy-Reduction Goal?

Five percent reduction per year? _____

Ten percent reduction per year? _____

Fifteen percent reduction in 3 years? _____

Twenty-five percent reduction in 3 years? _____

Other? _____

What's Your Plan?

What energy conservation measures have you already taken?

What planned changes will you make this year? (First year of recordkeeping)

Housing *(For example: Replace old loose-fitting windows with new double-glazed windows. Seal all cracks.)*

Appliances

Personal habits

Auto use

Other

What are your planned changes for next year?

Housing

Appliances

Personal habits

Auto use

Other

What are your planned changes after that?

Housing

Appliances

Personal habits

Auto use

Other

Measuring Energy Use

In calculating how much energy is consumed in and around your home, it helps to use one common unit of measure, the British thermal unit (Btu), for the different forms of energy — electricity, gas, wood, coal, oil, kerosene, and gasoline.

British thermal unit (Btu) = Energy required to increase the temperature of 1 pound of water 1 degree Fahrenheit.

Figure the Btu's of energy used monthly in each form and record the amounts on the enclosed charts. (Formulas are provided to convert the amount of energy used to Btu's.) Plot the Btu totals on the graphs, using a different color to represent each year.

By monitoring the amount of energy used in each form, you can determine where you can cut back. Compare the energy (Btu's) used from month to month in each form over a year's time. During the second year, compare the monthly energy usage in each form with the Btu's used in the corresponding months of the previous year. Continue monitoring the Btu's used monthly the third year, comparing these figures with the energy used during the first and second years.

In addition, record the *total* amount of energy used monthly and yearly from all sources over a 3-year period. Use the data to assess progress toward your energy-reduction goal.

The cost of energy is a major concern, so keep records of the cost along with the amount of energy used. Although you may be reducing the amount of energy spent, the cost may not decrease proportionately since most energy costs are continuing to increase. Calculate what the energy would have cost each year if you had not reduced the amount consumed. Compare these figures with the amount you paid after reducing your energy usage. This cost-savings should encourage you to continue your energy-reduction plan while helping to extend our dwindling energy supply a little longer.

Electricity

Look at your monthly electric bill for the number of kilowatt-hours (kWh) used.

1 kWh = 3,413 Btu's
kWh × Conversion Factor = Total Btu's

For example: A family used 500 kilowatts of electricity in January.
500 kWh × 3,413 Btu's = 1,706,500 Btu's of energy.

Electric Bill

Billing Period		Meter Reading		Service Charge	
From	To	Previous	Current	Type of Service	Charge
FEB 15 84	MAR 16 84	19660	20470	RESIDENTIAL ELECTRIC	4599

SERVICE ADDRESS

MARYAUSTIN
1834TH STREET
TRIANGLE VA 22172

ACCOUNT NUMBER

73 53 0446 2

TOTAL CHARGES

4599

UTILITY TAX

225

TOTAL CURRENT AMOUNT

4824

BALANCE FROM PREVIOUS BILL

0

ACCOUNT BALANCE

4824

ACCOUNT BALANCE REFLECTS PAYMENTS RECEIVED BY

MAR 21 84

This bill covers

30 days

Average Cost per Day for Service Used \$

1.53

1st Year				2nd Year			3rd Year		
Month	Cost	kWh	Btu's	Cost	kWh	Btu's	Cost	kWh	Btu's
January			*			*			*
February									
March									
April									
May									
June									
July									
August									
September									
October									
November									
December									
Total									

*Plot on graph below. Record Btu's beginning on page 16.

Million Btu's



Plot each year in a different color: 1st year red, 2nd year black, 3rd year blue

Gas

Look at your monthly bill for the amount used. Check the method used to measure the gas.

1 cubic foot of natural gas = 1,000 Btu's

1 therm of natural gas = 100,000 Btu's

1 pound propane = 20,000 Btu's

1 gallon liquid propane (LP) = 91,000 Btu's

1 cubic foot of propane gas = 2,500 Btu's

Amount of Gas X Conversion Factor = Btu's

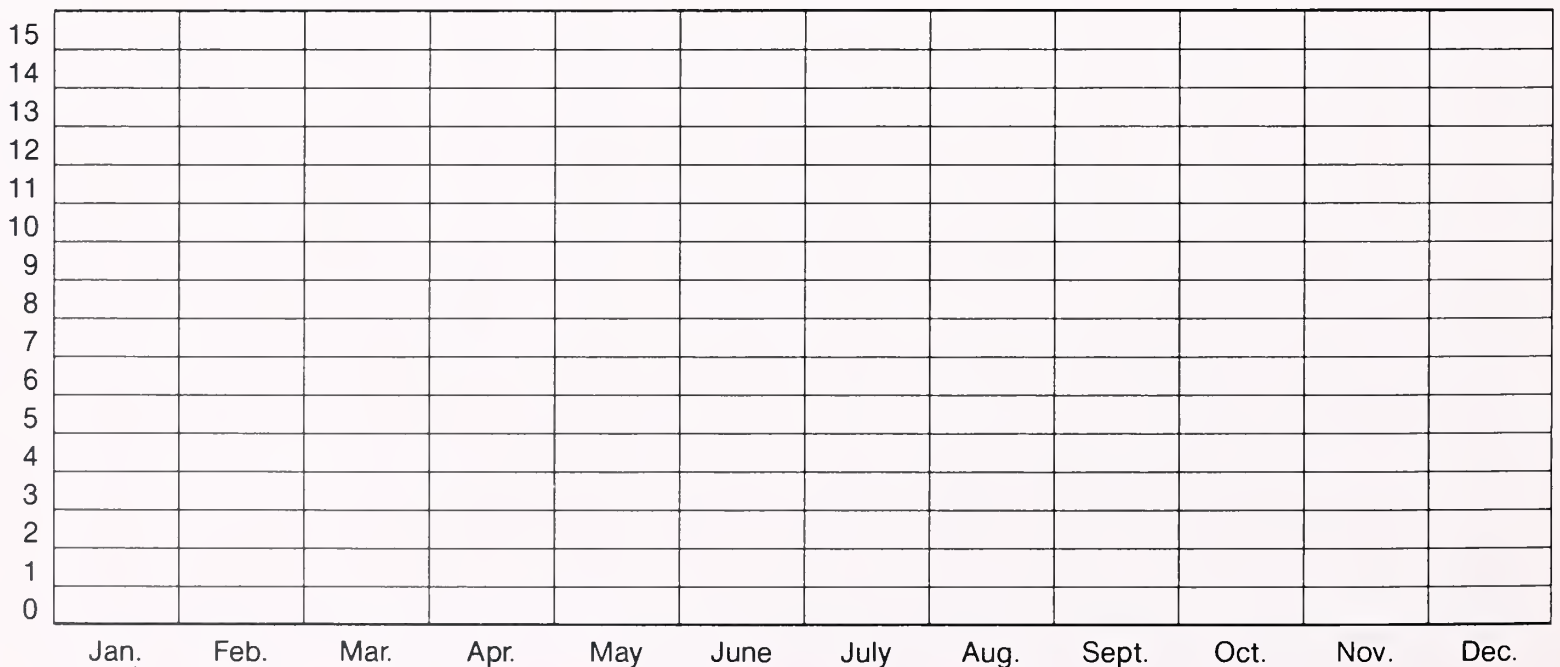


	1st Year			2nd Year			3rd Year		
Month	Cost	Amt.	Btu's	Cost	Amt.	Btu's	Cost	Amt.	Btu's
January			*			*			*
February									
March									
April									
May									
June									
July									
August									
September									
October									
November									
December									
Total									

*Plot on graph below.

Record Btu's beginning on page 16.

Million Btu's



Plot each year in a different color: 1st year red, 2nd year black, 3rd year blue

Gasoline

1 gallon of gasoline = 125,000 Btu's
Gallons X Conversion Factor = Btu's



	1st Year			2nd Year			3rd Year		
Month	Cost	Gal.	Btu's	Cost	Gal.	Btu's	Cost	Gal.	Btu's
January			*			*			*
February									
March									
April									
May									
June									
July									
August									
September									
October									
November									
December									
Total									

*Plot on graph below. Record Btu's beginning on page 16.

Million Btu's



Plot each year in a different color: 1st year red, 2nd year black, 3rd year blue

Oil

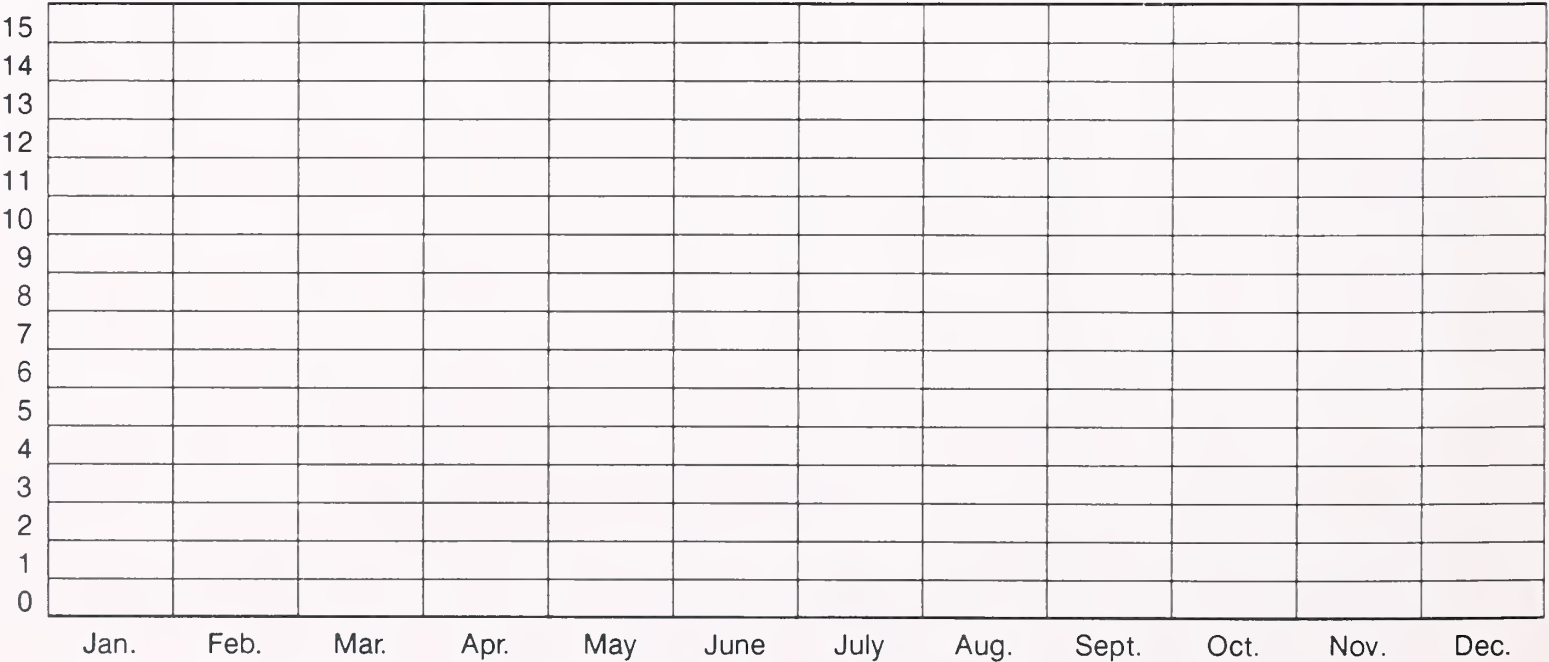
1 gallon of #2 home heating oil = 138,700 Btu's
Gallons × Conversion Factor = Btu's



	1st Year			2nd Year			3rd Year		
Month	Cost	Gal.	Btu's	Cost	Gal.	Btu's	Cost	Gal.	Btu's
January			*			*			*
February									
March									
April									
May									
June									
July									
August									
September									
October									
November									
December									
Total									

*Plot on graph below. Record Btu's beginning on page 16.

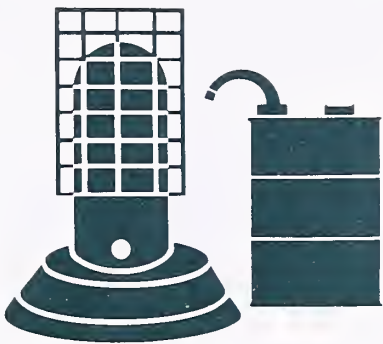
Million Btu's



Plot each year in a different color: 1st year red, 2nd year black, 3rd year blue

Kerosene

1 gallon of #2 kerosene = 135,000 Btu's
Gallons × Conversion Factor = Btu's

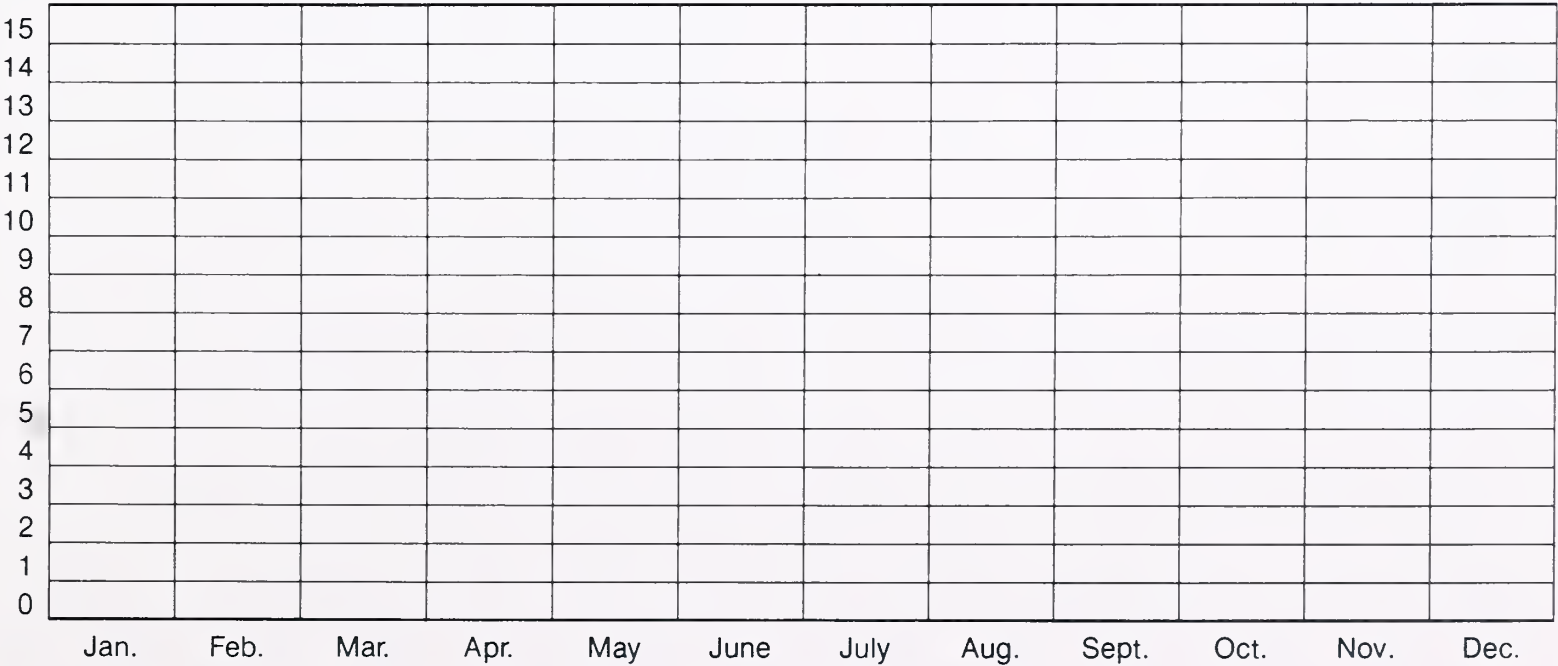


	1st Year			2nd Year			3rd Year		
Month	Cost	Gal.	Btu's	Cost	Gal.	Btu's	Cost	Gal.	Btu's
January			*			*			*
February									
March									
April									
May									
June									
July									
August									
September									
October									
November									
December									
Total									

*Plot on graph below.

Record Btu's beginning on page 16.

Million Btu's



Plot each year in a different color: 1st year red, 2nd year black, 3rd year blue

Coal

1 pound = 13,000 Btu's
1 ton (2,000 pounds of coal) = 26,000,000 Btu's
Amount × Conversion Factor = Btu's



	1st Year			2nd Year			3rd Year		
Month	Cost	Amt.	Btu's	Cost	Amt.	Btu's	Cost	Amt.	Btu's
January			*			*			*
February									
March									
April									
May									
June									
July									
August									
September									
October									
November									
December									
Total									

*Plot on graph below. Record Btu's beginning on page 16.

Million Btu's



Plot each year in a different color: 1st year red, 2nd year black, 3rd year blue

Wood

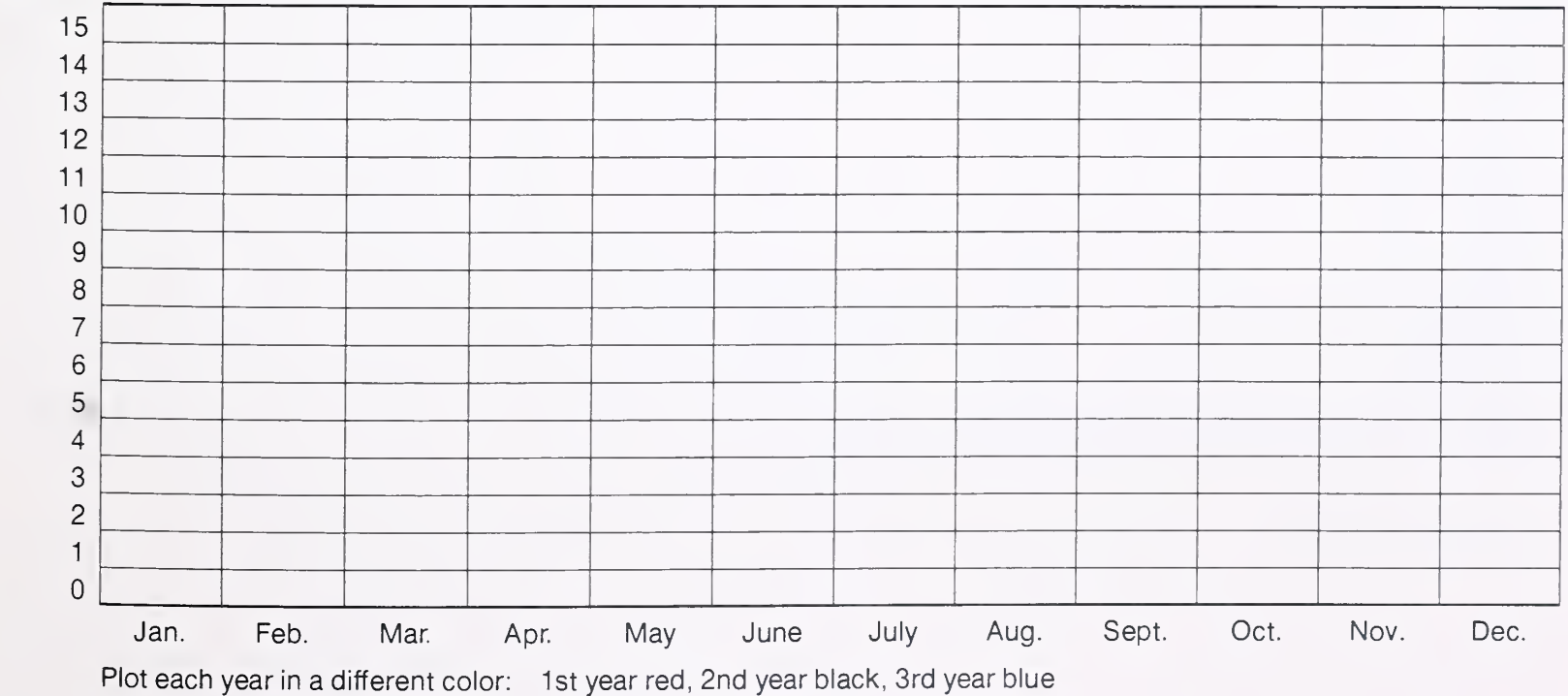
A cord of wood (a stack 4 feet by 4 feet by 8 feet) = 25,000,000 Btu's
Average Cord or Fraction of Cord × Conversion Factor = Btu's
Note: Add the cost involved if you cut or haul your wood.



	1st Year			2nd Year			3rd Year		
Month	Cost	Amt.	Btu's	Cost	Amt.	Btu's	Cost	Amt.	Btu's
January			*			*			*
February									
March									
April									
May									
June									
July									
August									
September									
October									
November									
December									
Total									

*Plot on graph below. Record Btu's beginning on page 16.

Million Btu's



Btu's of Energy Used First Year

19_____

Month	Electricity	Gas	Gasoline	Fuel Oil	Kerosene	Coal	Wood	Total (across)*
January								
February								
March								
April								
May								
June								
July								
August								
September								
October								
November								
December								
Total (down)								

*Transfer last column, by month, to page 18. Plot on graph.

Record observations:

Btu's of Energy Used Second Year

19_____

Month	Electricity	Gas	Gasoline	Fuel Oil	Kerosene	Coal	Wood	Total (across)*
January								
February								
March								
April								
May								
June								
July								
August								
September								
October								
November								
December								
Total (down)								

*Transfer last column, by month, to page 18. Plot on graph.

Record observations:

Btu's of Energy Used Third Year

19_____

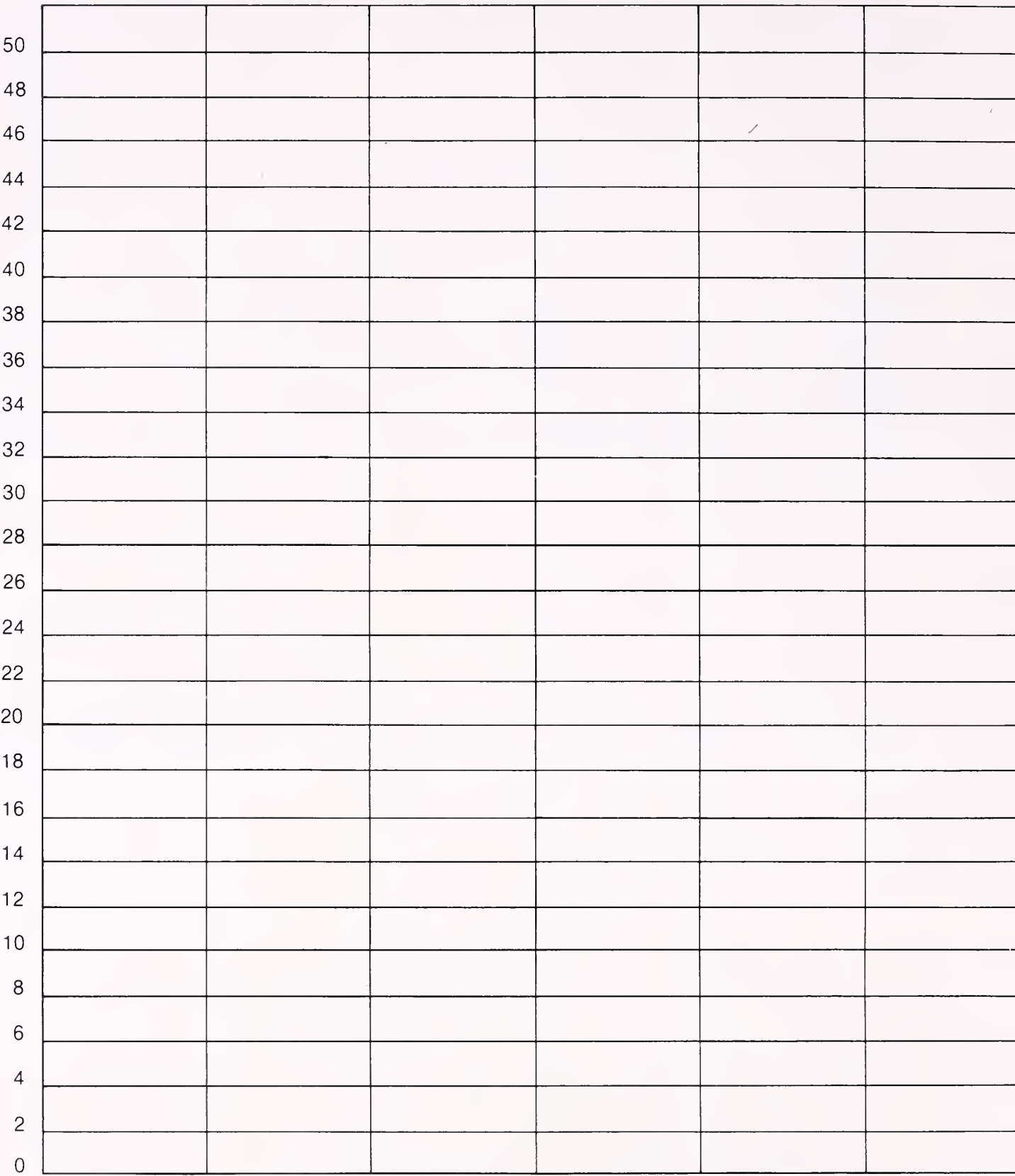
Month	Electricity	Gas	Gasoline	Fuel Oil	Kerosene	Coal	Wood	Total (across)*
January								
February								
March								
April								
May								
June								
July								
August								
September								
October								
November								
December								
Total (down)								

*Transfer last column, by month, to page 18. Plot on graph.

Record observations :

Energy Used Over a 3-Year Period

Million Btu's



TOTAL Btu's

1st Year

2nd Year

3rd Year

January	February	March	April	May	June
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____

Plot each year in a different color: 1st year red, 2nd year black, 3rd year blue

